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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,513	07/21/2003	Kenichi Fujita	030812	3785

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ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER	
RONESI, VICKEY M	
ART UNIT	PAPER NUMBER
1714	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/622,513	FUJITA ET AL.	
	Examiner	Art Unit	
	Vickey Ronesi	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12 and 15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

2. All outstanding rejections are withdrawn in light of applicant's amendment filed on 10/17/2006.

3. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on 10/17/2006. In particular, claim 12 has been amended to limit the master batch to one which has been molded into a pellet-like shape. Thus, the following action is properly made final.

Claim Rejections - 35 USC § 112

4. Claims 12 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 12, the term "pellet-like shape" fails to satisfy the written description requirement of 35 USC 112, first paragraph since there does not appear to be a written description requirement of the term in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. Applicant appears to only have support for "pellets" and not "pellet-like shape."

With respect to claim 15, it is rejected for being dependent on a rejected claim.

Claim Rejections - 35 USC § 103

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of *Hawley's* (*Hawley's Condensed Chemical Dictionary, 13th Edition*), Ali (US 6,194,507), and Takeda et al (US 6,319,613).

Fisher discloses an IR absorbing polyvinyl butyral composition comprising lanthanum hexaboride particles having a particle size less than 200 nm, preferably ranging from 5 to 200 nm (paragraph 0019), in an amount ranging from about 0.005 to about 0.1 wt % based on the entire composition (paragraph 0015) that is used as an interlayer in glass laminates (paragraph 0012).

Fisher only discloses amounts of hexaboride of up to 0.1 wt % and fails to disclose a master batch in the form of pellets, surface treating the hexaboride, or hexaboride compounds other than lanthanum hexaboride.

With respect to the amounts of hexaboride, while Fisher only discloses amounts of hexaboride of up to 0.1 wt %, it is considered that it would have been obvious to one of ordinary skill in the art to utilize a masterbatch which would necessarily contain a higher concentration of the hexaboride, including amounts like presently claimed, in order to improve the dispersion of the hexaboride in the final composition. Evidence to support the examiner's position is found in *Hawley's* which discloses that a previously prepared mixture composed of a base material and a high percentage of an ingredient that is critical to the product being manufactured is a masterbatch which permits uniform dispersion of very small amounts (less than 1% like the hexaboride in Fisher's composition) (pages 703-704).

With respect to the mater-batch being in the form of pellets, Ali discloses concentrates in thermoplastics and teaches that it is recognized by one of ordinary skill in the art that for most

molding and/or shaping processes, pellets of a concentrate are most advantageous for accommodating most molding and/or shaping apparatuses (col. 4, lines 16-24). Given that it is well within the capabilities of one of ordinary skill in the art to utilize a master batch in the form of pellets as taught by Ali, it would have been obvious to one of ordinary skill in the art to utilize a master batch of Fisher in the form of pellets.

With respect to surface treating the hexaboride, while Fisher does not disclose that its hexaboride is surface-treated with a silane, titanium, or zirconium compound as presently claimed; however, note that it is open to other suitable additives (paragraph 0025). Takeda et al discloses a composition comprising a binder such as a thermoplastic resin (col. 4, lines 36-44; col. 5, lines 39-41) and hexaboride particles (abstract) which are used with a surface active agent such as a silicone (i.e., silane) coupling agent (col. 6, line 44) to improve stability of the hexaboride particles (col. 5, lines 43-45) and to be able to control surface resistivity (col. 5, lines 53-56). It is noted that the "silicone coupling agent" of Takeda et al is necessarily a silane coupling agent since a silicone by itself does not have a reactive functional group.

Given the teachings by Takeda et al regarding the benefits of surface-treating hexaboride particles in polymer compositions, it would have been obvious to one of ordinary skill in the art to utilize a silane coupling agent to improve the dispersion and control surface resistivity of the hexaboride particles in Fisher.

With respect to the use of IR absoring materials other than lanthanum hexaboride, Fisher discloses the use of lanthanum hexaboride as an IR absorbing material, however, it does not disclose the use of other lanthanide hexaborides and calcium hexaboride as presently claimed. Takeda et al discloses a sunlight-shielding coating solution that utilizes fine hexaboride particles

to impart sunlight-shielding properties which include compounds XB_6 where X = La, Ce, Nd, Gd, Tb, Dy, Ho, Sm, Eu, Er, Tm, Yb, Lu, Sr, or Ca (abstract).

In view of Takeda et al's recognition that lanthanum hexaboride and other lanthanide hexaborides and calcium hexaboride are equivalent and interchangeable, it would have been obvious to one of ordinary skill in the art to substitute lanthanide hexaboride with any of the hexaborides disclosed by Takeda et al and thereby arrive at the presently cited claims. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958).

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of *Hawley's* (*Hawley's Condensed Chemical Dictionary, 13th Edition*), Ali (US 6,194,507), and Takeda et al (US 6,319,613) and further in view of Wypych (*Handbook of Fillers*).

The discussion with respect to Fisher, Ali, and *Hawley's* in paragraph 5 above is incorporated here by reference.

Takeda et al teaches the use of silicone (i.e., silane) coupling agents, however, it does not teach the use of other types of surface treating agents.

Wypych also teaches the equivalency of using silicon, titanium, and zirconium compounds in surface-treating agents (page 320).

Therefore, given the teachings by Wypych regarding the benefits of surface-treating a hydrophilic filler with any one of silane, titanium, or zirconium compounds in polymeric compositions, it would have been obvious to one of ordinary skill in the art to utilize a titanium or zirconium compound as the surface treating agent of Takeda et al. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958).

7. Claim 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of *Hawley's* (*Hawley's Condensed Chemical Dictionary, 13th Edition),* Ali, and Takeda et al (US 6,319,613) and further in view of and Hall (EP 0 459 704).

The discussion with respect to Fisher, *Hawley's*, Ali, and Takeda et al in paragraph 5 above is incorporated here by reference.

Fisher does not disclose thermoplastic resins as presently claimed; however, Fisher discloses that other polymers which are used to form interlayer sheets of glass laminated could be substituted for the preferred PVB (paragraph 0021).

Hall discloses an impact-resistant windshield for pressurized aircraft and teaches that polycarbonate energy-absorbing glass laminate interlayers provide improved impact properties at elevated temperatures than conventional energy-absorbing glass laminate interlayers such as polyvinylbutyral and polyurethane which only provide satisfactory performance at low and normal ambient temperatures (col. 1, lines 25-44).

Given that Fisher is open to thermoplastic resins other than PVB and given that Hall teaches the benefit of polycarbonate interlayer in glass laminates, it would have been obvious to one of ordinary skill in the art to substitute the PVB of Fisher with polycarbonate resin.

Response to Arguments

8. Applicant's arguments filed 10/17/2006 have been fully considered but they are not persuasive. Specifically, applicant argues (A) that Fisher's polyvinyl butyral is plasticized with a Tg of 3-30°C and therefore cannot be formed into pellets and (B) that Fischer teaches that the hexaboride is dispersed in the plasticizer before being mixed with PVB and fails to disclose a master batch.

With respect to argument (A), first, it is not made clear from where the Tg range of 3-30°C is derived. Second, while Fisher's polyvinyl butyral is plasticized this does not necessarily mean that it is not solid at room temperature given that common polymers such as polypropylene and polyethylene have T_gs below room temperature and are commonly in pellet form. Third, Fisher suggests using thermoplastic resins other than polyvinyl butyral which would not require a plasticizer to be processed and would therefore be a solid at room temperature and hence capable of being formed into pellets.

With respect to argument (B), Fisher explicitly discloses an embodiment where the hexaboride compound is dispersed in the plasticizer before being mixed with the PVB resin. Nevertheless, Fisher also teaches the use of alternative preparation techniques (paragraph 0029). Therefore, given the teachings by *Hawley's* and Ali, it would have been obvious to one of ordinary skill in the art to utilize a master batch to prepare the composition of Fisher.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vickey Ronesi whose telephone number is (571) 272-2701. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

12/19/2006
Vickey Ronesi

VASU JAGANNATHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700